

Supplementary Material

Spectral Analysis

The wavelet spectra of ET at most of the coastal points illustrated maximum power around the annual frequency (time period = 1 year.) Another, much smaller peak, is also noticed around the semiannual frequency (time period = 1 year.) Most of the points also illustrated some power spread broadly over the high higher frequencies with the greatest amount of high frequency power observed at point 21.

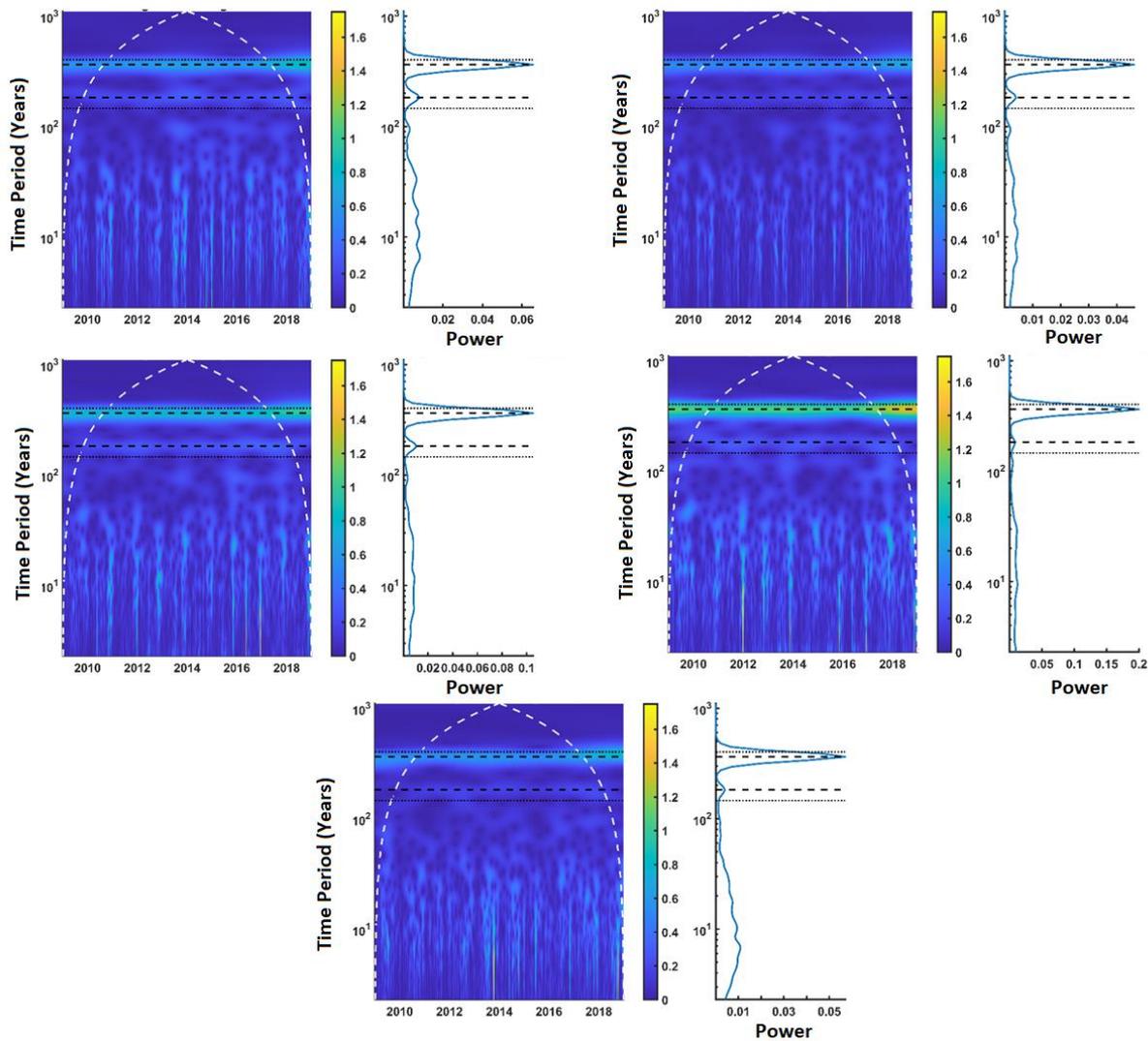


Figure S1: The time-frequency wavelet spectra and time-averaged wavelet spectra of ET for five points along the east coast of India

The wavelet spectra of UI_{SST} at most of the coastal points also illustrated a peak around the annual frequency (time period = 1 year,) semi-annual frequency (time period = 0.5 years,) and another peak with time period greater than 100 days. The bandpass filtering employed in this study retains the first two of these three peaks.

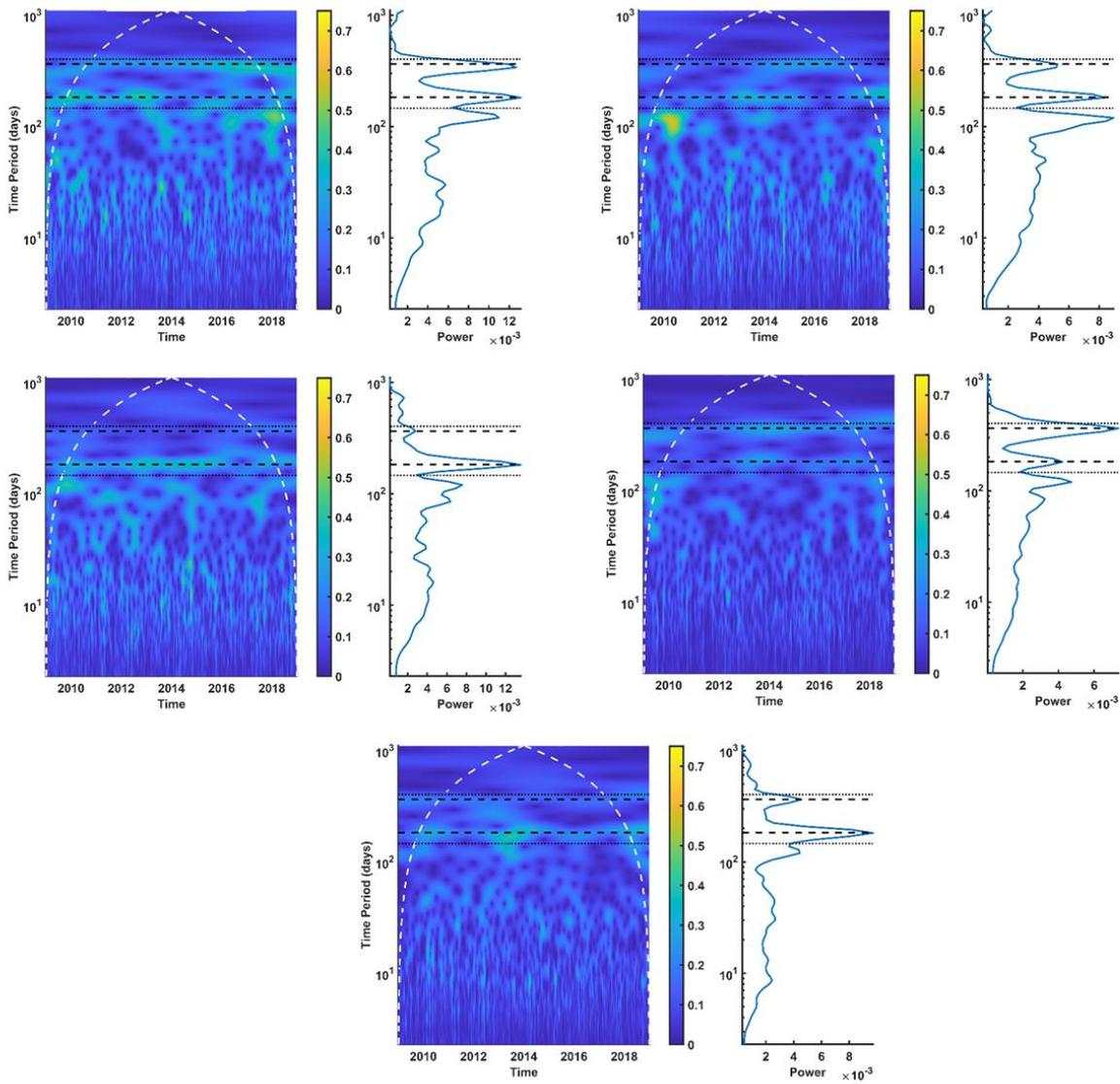


Figure S2: The time-frequency wavelet spectra and time-averaged wavelet spectra of UI_{SST} for five points along the east coast of India

The wavelet spectra of SSHA (presented in figure S3) illustrated that most of the power concentrated between 0.5 year and 1 year time periods, with the power at semi-annual frequencies comparable to or exceeding that at annual frequencies at some points. A considerable amount of power is also observed near 100 day time period at the first four points.

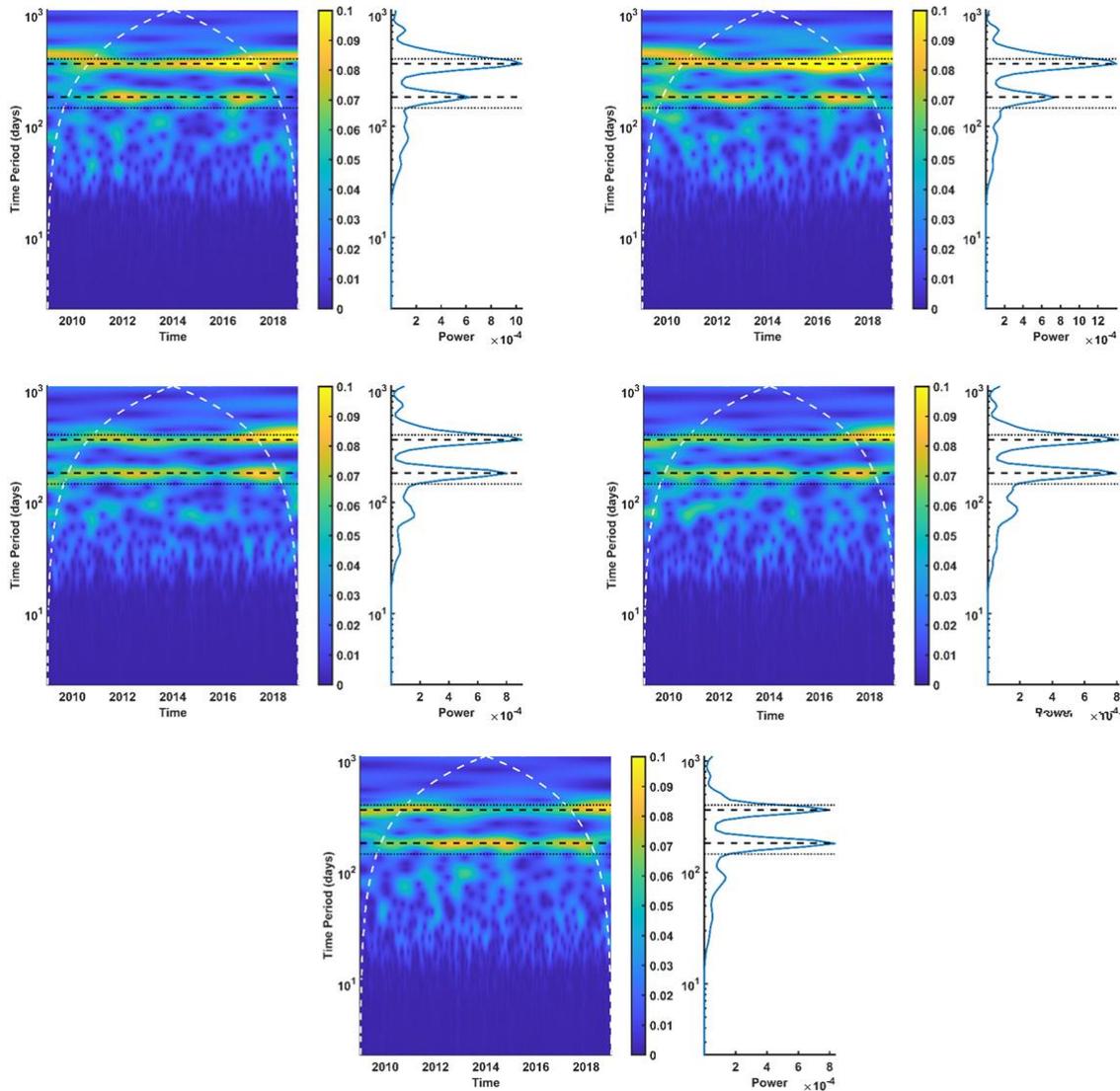


Figure S3: The time-frequency wavelet spectra and time-averaged wavelet spectra of SSHA for five points along the east coast of India

The wavelet spectra presented in figures S1, S2, and S3 indicated the possibility of strong coherence between UISST and ET within the time period range of 0.5 to 1 years, and a strong coherence between UISST and SSHA both within this range and at higher frequencies. The former case might be associated

with wind driven (AWS) driven coastal upwelling, while the coherence of the later at higher frequencies might be associated with eddy-driven upwelling. The time period range of 0.4 – 1.1 year (indicated as dotted lines on the time-averaged spectra) spanning the seasonal range of frequencies is therefore selected for the analysis of ET driven coastal upwelling.